

A Life-Cycle Based Combined Affirmative Procurement (AP) / Environmentally Preferred Products (EPP) System

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AP / EPP Goals

- Promote the purchase of AP products
 - Recycled content
 - Biobased content
- Promote the purchase of environmentally preferred products
 - Provides resource conservation benefits
 - Provides waste minimization benefits
 - Demonstrates stewardship
 - Reduces regulatory compliance costs
 - Reduces the use of unsafe products
 - Reduces employee health risks
 - Reduces GRC environmental impacts



AP / EPP Strategy

- Develop the AP / EPP product evaluation model
- Test the evaluation model and process
- Identify priority target chemicals and hazards to be removed from the site
- Identify and evaluate products using the tool
- Implement the AP / EPP system
- Expand electronic linkages and uses



Sustainable Design and Development

Life-cycle approach to facilities planning, design, construction, operation and maintenance

Life Cycle Assessment

Comprehensive project examination of economic, E H & S impacts throughout lifetime

Environmentally Preferred Products

Life-cycle approach to evaluating off-the-shelf products for multiple applications

Affirmative Procurement

Encourage purchase of products with recycling/biobased content

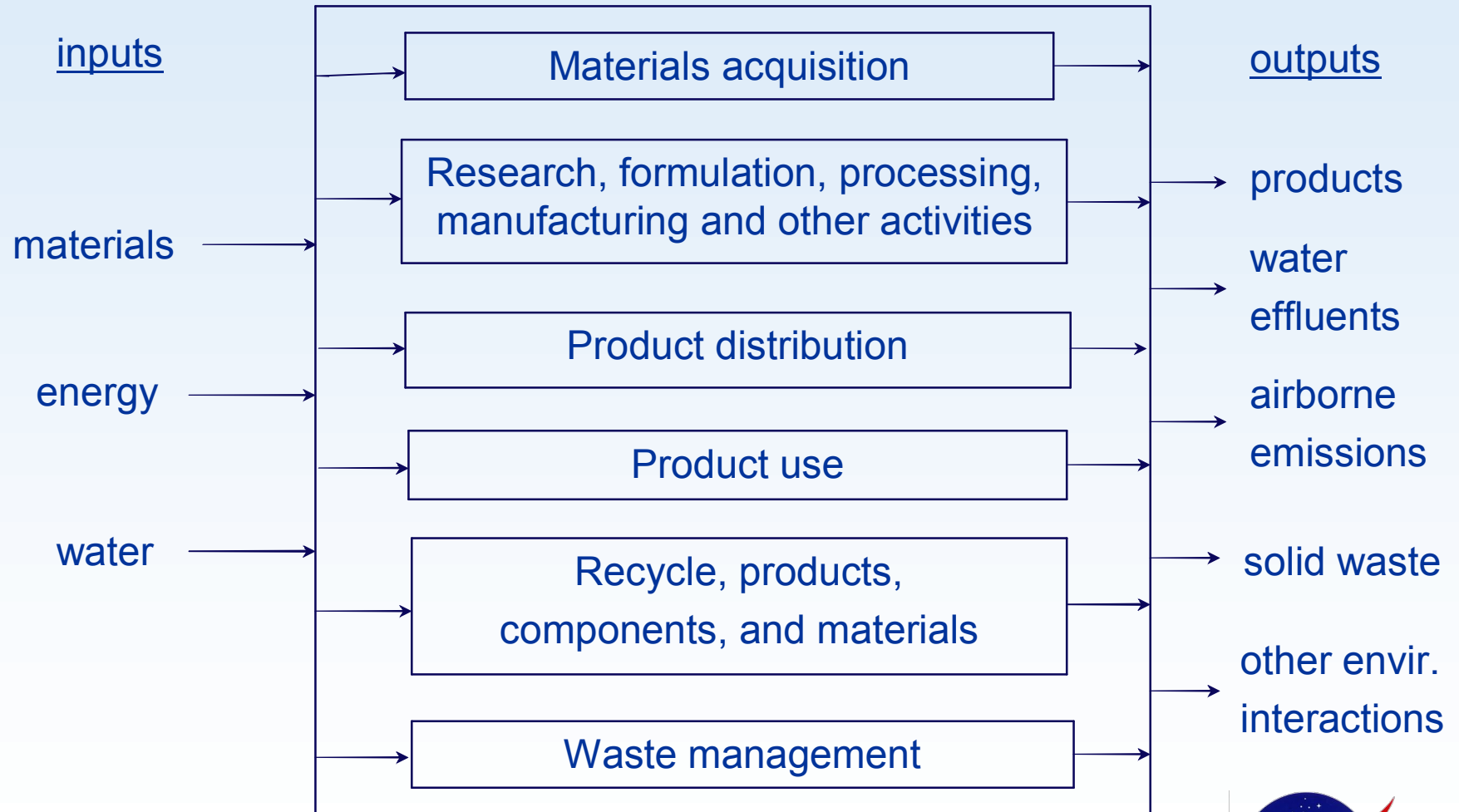
Regulatory Compliance

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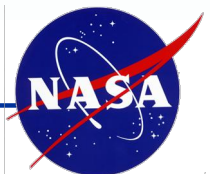


Life-Cycle Based Evaluation Concept



AP / EPP Product Evaluation Model

- Develop the life-cycle based AP/EPP product evaluation system
- Determine product-type categories to be included (site-specific)
- Identify candidate products for the AP/EPP list evaluation
- Gather information (MSDS) for candidate products
- Evaluate products for AP/EPP scores by categories
- Develop product-use / safety summaries to be linked to the AP/EPP lists
- Conduct product performance tests and/or gather information to include in the lessons learned links



Life-Cycle Evaluation Stages & Criteria

- Price – includes capital and operating costs as well as revenue
- Performance – includes applicability and performance records
- Raw Materials – includes recycled and biobased content
- Manufacturers – includes numerous life-cycle items
- Product use – includes the greatest number of parameters, addressing the on-site issues as well as final disposal and recycling



AP / EPP Evaluation Parameters

<u>Rating Category</u>	<u>Raw Material</u>	<u>Manufacturer</u>	<u>Product-User</u>
Affirmative Procurement			
• Recycled content	X	X	X
• Biobased content	X	X	X
Performance			
• Applicability			X
• Performance record			X
Price – capital costs			
• Product			X
• Other			X



AP / EPP Evaluation Parameters

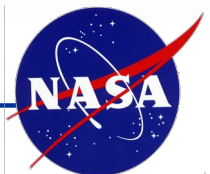
<u>Rating Category</u>	<u>Raw Material</u>	<u>Manufacturer</u>	<u>Product-User</u>
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Price – Operation & maintenance costs

- | | | | |
|-----------------------------------------|--|--|---|
| • Install, train, material, supervision | | | X |
| • Personal protective equipment | | | X |
| • Storage, discounts, tax, other admin. | | | X |
| • Maintenance & repairs | | | X |
| • Compliance, P2, treat., disp. | | | X |
| • Other indirect costs | | | X |

Price - Potential Revenues

- | | | | |
|--------------------------------|--|--|---|
| • Take-back & trade-in | | | X |
| • Salvage value | | | X |
| • Sale of by-products | | | X |
| • Sale of recyclable materials | | | X |



AP / EPP Evaluation Parameters

<u>Rating Category</u>	<u>Raw Material</u>	<u>Manufacturer</u>	<u>Product-User</u>
Meeting Goals			
• Recycle potential	X	X	X
• Solid waste minimization (7)	X	X	X
• Haz. waste minimization (7)	X	X	X
Conservation			
• Water-use reduction	X	X	X
• Energy-use reduction	X	X	X
• Other resources reduction (4)	X	X	X
Facility E, H & S			
• Environmental emissions (3)			X
• Health risks reduction (10)			X
• Safety risks reduction			X

AP / EPP Evaluation Parameters

<u>Rating Category</u>	<u>Raw Material</u>	<u>Manufacturer</u>	<u>Product-User</u>
Potential Environmental Impacts			
• Bioaccumulation	X	X	X
• Environmental damage (5)	X	X	X
• Global issues (5)	X	X	X
Compliance			
• Regulatory benefits (4)			X
• E.O. & policies benefits (20)			X
• Reduced liabilities (4)			X



AP / EPP Scoring System

Health risks benefits: Health risk factors include the following, weighted by factor appropriately: Carcinogens, neurotoxins, immunotoxins, reproductive/developmental toxins, other toxins, irritants, sensitization. OSHA-regulated chemicals will be on a “restricted” list, along with additions made by the IH department. Consideration will be given to potential inhalation, skin contact (including absorption), eye exposure, and ingestion.

The most desirable products in this category would provide the greatest reduction in health risks due to the use of the product at GRC.

<u>Rating</u>	<u>Potential for health risks benefits</u>
5 =	Excellent
4 =	Good
3 =	Moderate
2 =	Limited
1 =	Minimal
0 =	Product does not provide health risks benefits



EPP Summary Score Sheet for customers

Heavy-duty cleaner / degreasers		Summary										
		Price per sq ft	0 to 5 Performance: Tested at GRC		0-5 AP	Potential Haz rel.	0 to 5 Health ben score	0 to 5 Safety ben score	0 to 97 Total Score	0 to 5 LIFE CYCLE (Environmental effects) Raw matl. Manufctr Use		
NMP	Lyondell	\$0.85	4	T	0	TRI/Petrol	3	4	68	2	3	3
Simple Green	Sunshine Makers	\$0.20	4	T	3	HAP	2	5	75	4	2	2

Weighting Factors

- Vary between 0.1 and 1.0 for every parameter
- Set values for each product-use category
- The factors represent the relative importance of the parameter :

For a critical aerospace part, all performance factors may be 1.0, and other factors might be reduced to reflect the priorities

For a light cleaners, health, safety, environmental issues and price may be given high factor values, and performance factors might be reduced

- All factors assigned must be in agreement with facility policies
- Allows easy scoring transferring between product-use categories
- Allows easy EPP transferring between categories, facilities, etc.



Affirmative Procurement / Environmentally Preferable Purchasing

UNDERSTANDING THE POINT SYSTEM

LESSONS LEARNED

- “Green” vendors
- Products / chemicals
- Safe use

BACKGROUND / SPONSORS

CONTACT US

- Product Users
- Vendors

EPP PRODUCTS



by Use

[Search](#)

[Alpha list](#)



by Product

[Search](#)

[Alpha list](#)



by Vendor

[Search](#)

[Alpha list](#)

1) NASA does not endorse any products.

2) EPP does not mean the product is harmless. Please read all vendor and NASA information before use. [Click here for more.](#)

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AP / EPP Product-Use Categories

- Cleaners
 - Light-duty cleaners
 - Heavy-duty degreasers
 - Parts washers & degreasers
 - Precision cleaners
 - Electrical contact cleaners
 - Defluxers
- Paints, Coatings, Adhesives
 - Paints
 - Paint touch-up – aircraft
 - Paint removers
 - Coating removers
 - Adhesive removers
- Machining Fluids
 - Lubricants
 - Coolants
 - Dyes
 - Cutting fluids
- Automotive Products
 - Automotive degreasers
 - Brake cleaners
 - Tire glue
 - Tire beadsealer
 - A/C flush solvent
- Home & janitorial products
 - Light-duty cleaners
 - Adhesives
 - Adhesive removers
 - Paints
 - Paint removers
 - Toilet bowl cleaners



AP / EPP Implementation Challenges

- Aperture database ?
- IFMP ?
- Some product categories may be site-specific
- Target chemicals to require a waiver may vary between facilities
- Others?



Potential Future of AP / EPP Systems

- Expanded & applied to all practical off-the-shelf product-use categories
- Easily assimilated by other NASA facilities
- May have greater impact
 - GSA & other federal facilities?
 - Business & industry?
 - Community & residential applications?
- Computer-aided pollution prevention assessments linked to EPP program to identify potential alternative products

